

PATENT SPECIFICATION

(11) 1387 167

1387 167

- (21) Application No. 44864/72 (22) Filed 28 Sept. 1972
 (23) Complete Specification filed 27 Sept. 1973
 (44) Complete Specification published 12 March 1975
 (51) INT CL² D04H 3/02
 (52) Index at acceptance
 D1P 1A1B4 1A1B5 1A3 1C1A 1C4
 (72) Inventor ALAN JONES

(19)



(54) BLEACHING AGENT

(71) We, PROCTER & GAMBLE LIMITED, a British company of Hedley House, Gosforth, Newcastle upon Tyne, NE99 1EB, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to a bleaching agent effective at relatively low temperatures, and to bleaching compositions containing it, which minimise or eliminate localised damage to the colours of dyed fabrics.

For many years detergent and like compositions have contained inorganic perhydrates, such as, most commonly, sodium perborate, as a bleaching agent. These substances have little bleaching action at temperatures below about 70°C, in normal domestic laundering conditions. If particles of solid perborate and the like are trapped in damp fabrics, they are liable to cause some localised bleaching of relatively sensitive types of dyes, but this occurs only rarely because at moderate temperatures the perborate is relatively weakly active, and because at higher temperatures it has a very high chance of being dissolved, and because, in general, coloured fabrics are not subjected to high temperature washing, for instance at or near the boil.

In recent years there has been a tendency for more of the wash to be carried out at moderate temperatures, and there has been a need for bleaching agents which are effective at such temperatures. A very effective class of low temperature bleaching agents, effective at temperatures from about 30°C up to boiling, are the organic peroxy acids and compounds which form these acids, or their salts, in dilute aqueous solutions, especially alkaline solutions. Solid compounds (at ambient temperatures) are preferred. Among members of this class may be mentioned peroxy carboxylic acids, especially those disclosed in British Patent Specification No. 886,188, and various organic peroxides, especially di-acyl peroxides such as those disclosed in Belgian

Patent 603,768 or British Patent 1,293,063, especially benzoyl succinyl and benzoyl glutaryl peroxides. Others are diperaidipic acid, diperazaleic acid, diperisophthalic acid. Certain "activators" for inorganic perhydrates, such as tetra acetyl glycoluril, and sodium p-benzoyloxy benzene sulphonate also form organic peracids in alkaline solutions containing these perhydrates, that is containing perhydroxyl ions.

In the context of this specification, the term "peroxy substance" is used to mean (a) an organic peroxy acid, (b) an organic peroxide which forms a peroxyacid or a salt thereof in alkaline aqueous solution or (c) an activator, which is defined as a compound which forms a peroxy acid or salt thereof in an aqueous solution which contains perhydroxyl ions.

By suitable selection of bleaching compound, concentration in use and so on, bleaching compositions can be formulated which are effective in bleaching most ordinary stains found on soiled fabrics without significantly damaging most dyestuffs. However, it has been found that if particles of these compounds are trapped in undissolved state on the surface of dyed fabrics, the local concentration of bleach is sufficient to cause localised damage to colours, a fault described as "spot damage" or "pin point spotting".

The activators, especially the more active ones, can also cause pin-point spotting of fabrics with sensitive dyes, due apparently to local high concentrations of organic peracid forming near incompletely dissolved particles of the activator.

The invention provides bleaching agents which comprise bleaching compounds of the above type and which eliminate or at least much reduce the incidence of this pin-point spotting. It also provides a method of preparing such bleaching agents and bleaching compositions containing them.

According to the invention there is provided a solid particulate bleaching agent whose particles comprises a solid peroxy substance as hereinbefore defined the peroxy substance being substantially completely surrounded by

a substantially water-impermeable layer of a material which is inert to the peroxy substance or able to act as a stabiliser therefor and which has a melting point in the range 30 to 95°C and being further surrounded by an outer coating comprising a particulate water soluble inorganic hydrate-forming salt having a pH in a 1% by weight aqueous solution of at least 10.5.

The dyed fabrics for which the bleaching agent may be suitable are those whose colours would be fast to washing in ordinary heavy duty alkaline laundering compositions, for instance having pH, in 0.5% aqueous solution by weight, of about 8 to 10.5, or in a saturated solution of the components, other than the peroxy compound, of the bleaching agent. Dyes susceptible to damage by ordinary washing would not be expected to be less damaged in the presence of the bleaching agent.

Since most peroxy acid bleaching compounds are less harmful to colours in alkaline conditions e.g. pH over about 9.5, the inorganic salt should be one giving a pH, in a 1% aqueous solution, of at least 10.5.

The water-impermeable material serves to protect the peroxy substance from moisture and from the closely adjacent alkaline inorganic salt. Without it the presence of moisture, especially together with alkali, would cause relatively rapid decomposition and loss of bleaching activity of the peroxy substance during storage before use. In view of the close proximity of the alkaline coating, it is important that the protection should be substantially complete. For best results the melting point and melting characteristics of the material should be such that it does not start to soften appreciably at the highest storage temperature to which the product is likely to be subjected. On the other hand, the water-impermeable material must be so composed that it is removed when the bleaching agent is used in a bleaching or washing solution, and thus it should have a melting point in the range stated above, preferably in the range 35 to 60°C. Suitable materials include fatty acids, fatty alcohols, waxes such as paraffin waxes, saturated hydrocarbons, and mixtures thereof; fatty acids, especially lauric acid, whose melting point is about 45°C, are preferred, especially with the peroxides, particularly with benzoyl glutaryl peroxide; myristyl alcohol is preferred with sodium p-benzoyloxy benzene sulphonate.

The peroxy substance may be surrounded by the water-impermeable material in any effective manner, such as by coating, or by mixing and extruding as noodles which may afterwards be made into spherules in equipment such as a "Marumeriser" (Trade name). A preferred method, whereby particles of the peroxy substance viz. benzoyl glutaryl peroxide are embedded within solid droplets of

the water-impermeable material, is described below.

Preferably the weight ratio of peroxy substance to water-impermeable material is at most 5:1, more preferably 4:1 to 1:2, especially about 3:1 to 2:1. It is difficult to ensure complete coverage if the ratio is greater than about 4:1, while if it is less than 1:2 the proportion of inert material associated with the bleaching agent becomes inconveniently great.

Suitable water soluble hydrate-forming inorganic salts for use in the bleaching agents of the invention are those which have alkaline reaction in aqueous solution (i.e. having pH in 1% by weight aqueous solution of at least 10.5, preferably at least 11). The preferred salts are alkali metal carbonates (especially sodium carbonate, e.g. in the form of soda ash) but other alkaline-reacting hydratable salts can be used, provided that they can be obtained in finely particulate form, such as trisodium ortho-phosphate or sodium metasilicate, or the corresponding potassium salts.

Preferably the weight ratio of inorganic salt (calculated as anhydrous) to total peroxy substance and water-impermeable material is from 1:6 to 2:1, more preferably about 1 to 2. Lesser quantities provide insufficient alkaline substance, especially allowing for some lack of uniformity of the coating, to provide substantially complete freedom from pin-point spotting. Larger quantities are unnecessary for most purposes.

The salt coating can be applied by any effective method. Thus the particles of peroxy substance and water impermeable material may be moistened with some liquid and dusted with the salt. In a preferred method they are moistened by spraying with water, preferably having pH about 7, e.g. about 8, so that it does not neutralise the alkaline salt, and tumbled in a bed of incompletely hydrated, preferably anhydrous, finely divided salt. The salt is partially hydrated by the moisture and adheres to the particles. The tumbling can be carried out in, for example, a rotating drum or an inclined pan granulator. Instead of water an aqueous solution of an adhesive may be employed, or a nonaqueous liquid providing a surface so that the salt coats the particles. If, for instance, as described below, the particles of peroxy substance and water impermeable material are prepared in an aqueous dispersion, they may be only partly dried, and no water or only part of the total amount required may be sprayed on. The coated particles can be separated from the excess fine inorganic salt, for instance by sieving.

It is preferred to spray the coated particles with a waxy material, which may or may not be water-soluble, and may serve a number of purposes, such as making the salt coating more resistant to abrasion, dedusting the particles, and controlling their rate of solution. Suitable

substances include polyethylene glycols of molecular weight from 500 to 6,000, which are preferred; mono- and di-ethanolamides of fatty alcohols such as tallow alcohols condensed with about 25 molar proportions of ethylene oxide. Quite small amounts of waxy material are suitable, for instance from 1 to 10% by weight of the coated particles, especially about 5 weight %.

A preferred method of surrounding the peroxy substance, especially applicable where the peroxy substance (e.g. benzoylglutaryl-peroxide) is only poorly soluble in water at pH below 7 and has melting point above that of the water impermeable material, with the water-impermeable water comprises the steps of:

- (a) preparing a dispersion in water of molten droplets of the water-impermeable material, preferably at a pH below 7. The temperature of the water must be above the melting point of the material. The size of the droplets can be controlled by suitable stirring or agitating means,
- (b) adding to and mixing with this dispersion a dispersion in water of pH preferably less than 7, of fine solid particles, or crystals of peroxy substance,
- (c) allowing time for the solid particles to migrate to and become dispersed in the liquid droplets,
- (d) cooling the dispersion so that the droplets solidify, and
- (e) separating the solid droplets, as by filtration, from the water.

It is an advantage of this process that the peroxy substance, some of which substances are liable to be explosive or inflammable in the pure dry state, can be made and handled moist. It is a further advantage of the preferred water impermeable substances (viz. fatty acids) that they are desensitizers of peroxides.

The separated particles while still moist may be coated as described above with inorganic salt. Alternatively, they may be partially dried, and then moistened to the desired degree by a spray of water of slightly alkaline reaction to neutralise the slightly acidic water with which they are originally associated. Thereby the alkaline inorganic salt is not neutralised. In particular, when the salt is sodium carbonate, no formation of carbon dioxide occurs to interfere with the adhesion of the salt to the particles.

A suitable process for coating a relatively water soluble peroxy substance (including activators as defined above), such as sodium p-benzoyloxy benzene sulphonate, comprises spraying this substance in fine particulate form, or preferably spraying a dry mixture of this substance with substantially anhydrous alkaline inorganic salt as described above, with water impermeable material to form agglomerates. These agglomerates are coated, as described

above with alkaline inorganic salt, which may be the same or different from that contained in the agglomerates, but must be an incompletely hydrated hydratable salt having a pH at least 10.5 in 1% aqueous solution.

The particles of bleaching agent may also contain, in any part of their structure, other compatible components, either for aesthetic reasons, for instance colours, or to take advantage of the protection, from moisture or from other components of a composition, afforded by these particles.

The particulate bleaching agent of the invention may be incorporated, for example by dry mixing, in granular bleaching and bleaching-detergent compositions. These compositions may contain one or more of the usual components of the compositions of these classes, such as organic surface-active agents, inorganic and organic detergency building salts, other inorganic salts, suds promoting or suppressing agent, caking inhibitors, corrosion and tarnish inhibitors, soil suspending agents, substances having fabric softening and/or antistatic properties, bactericides, optical brighteners, colours and perfumes.

A preferred component of the bleaching compositions comprising organic peracids or peroxides is an inorganic perhydrate, such as sodium perborate, or sodium percarbonate, and other water soluble perhydrates. Preferably it is present in proportion such that the ratio of available oxygen in the peroxy substance to that in the perhydrate is from 3:1 to 1:6, more preferably from 1:1 to 1:4. This mixture provides slightly less bleaching action than an equivalent amount of the peroxy compound alone, but considerably more, in domestic laundering conditions than the perhydrate alone, and reduces the tendency of these low temperature active peroxy bleaching compounds to cause some overall fading of colours.

Compositions containing "activator" must, of course, contain an inorganic perhydrate. Preferably they contain approximately the amount of perhydrate chemically equivalent to the activator, i.e. able to react with it to form the corresponding organic per acid, and in addition further perhydrate. The additional perhydrate serves the same purpose, of minimising fading of colours, as the perhydrate added with organic peracids or peroxides as described above, and is added in similar amount.

Members of the anionic, nonionic ampholytic, zwitterionic or even cationic series of organic surface-active agents are suitable for use in the bleaching agents of the invention. Suitable anionic surface-active agents include water soluble soaps, especially sodium or potassium soaps of natural or synthetic fatty acids having from 8 to 24 carbon atoms. Suitable anionic synthetic detergents include water-soluble (especially sodium or potassium)

salts of organic sulphuric reaction products having, in their molecular structure, an alkyl radical containing from 8 to 22 carbon atoms and a sulfonic acid or sulfuric acid ester radical (included in the term alkyl is the alkyl portion or higher acyl radicals). Preferred anionic synthetic detergents are the alkyl sulfates, especially those obtained by sulfating the higher alcohols (C_{8-20} carbon atoms) and C_{8-16} alkyl benzene sulfonates; alkyl glyceryl ether sulfonates having 10 to 14 carbon atoms in the alkyl moiety; coconut oil fatty acid monoglyceride, sulfates and sulfonates; and salts of sulphuric acid esters of the reaction product of one mole of a higher (C_{8-20}) fatty alcohol (e.g. tallow or coconut oil alcohols) and 1 to 12 moles of ethylene oxide. Other suitable synthetic anionic detergents include salts of alkyl phenol ethylene oxide ether sulphate with 1 to 10 units of ethylene oxide per molecule and in which the alkyl radicals contain from 8 to 12 carbon atoms; and the reaction products of fatty acids esterified with isethionic acid and neutralised with sodium hydroxide; as well as others known in the art.

Suitable nonionic surface active agents for use in the bleaching agents of the invention include the following:—

(i) Compounds formed by condensing ethylene oxide with a hydrophobic base, formed by the condensation of propylene oxide with propylene glycol, whereby the hydrophobic portion of the molecule has a molecular weight of from about 1500 to 1800, while the polyoxyethylene content is about 50% of the total weight of the condensation product.

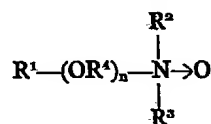
(ii) The polyethylene oxide condensates of C_{8-18} alkyl phenols with ethylene oxide, the ethylene oxide being present in amounts equal to 5 to 25 moles of ethylene oxide per mole of alkyl phenol.

(iii) Nonionic synthetic detergents derived from the condensation of ethylene oxide with the product resulting from the reaction of ethylene oxide with the product resulting from the reaction of propylene oxide and ethylene diamine; for example, compounds containing from 40% to 80% by weight of polyoxyethylene, and having a molecular weight of from about 5,000 to about 11,000 resulting from the reaction of ethylene oxide groups with a hydrophobic base which is the reaction product of ethylene diamine and excess propylene oxide; bases having a molecular weight of the order of 2,500 to 3,000 are satisfactory.

(iv) The condensation product of aliphatic alcohol having from 8 to 22 carbon atoms with ethylene oxide, e.g. a coconut alcohol-ethylene oxide condensate having from 5 to 30 moles of ethylene oxide per mole of coconut alcohol, the coconut alcohol fraction having from 10 to 14 carbon atoms.

(v) The ammonia, monoethanol and diethanol amides of fatty acids having an acyl moiety of from 8 to 18 carbon atoms.

(vi) Long chain tertiary amine oxides corresponding to the following general formula: 70



in which R^1 is an alkyl radical of from 8 to 24 carbon atoms, R^2 and R^3 are each methyl, ethyl, or hydroxyethyl radicals, R^4 is ethylene, and n is 0 or an integer up to 10. (The arrow in the formula is a conventional representation of a semi-polar bond). Specific examples of amine oxide detergents include dimethyl dodecyl amine oxide; cetyl dimethyl amine oxide; bis - (2 - hydroxyethyl) dodecyl amine oxide; and bis - (2 - hydroxyethyl) - 3 - dodecoxy - 1 - hydroxypropyl amine oxide. 75

Long chain phosphine oxides and sulfoxides are also suitable. 80

Ampholytic synthetic detergents suitable for use in the bleaching agents of the invention can be broadly described as derivatives of aliphatic secondary and tertiary amines, in which one of the aliphatic substituents contains from 8 to 18 carbon atoms and one contains an anionic water solubilising group, e.g. a carboxy, sulfo, sulfato, phosphato or phosphono group. Examples of compounds falling within this definition are sodium 3 - dodecylamino - propionate and sodium 3 - dodecylamino - propane sulfonate. 85

Suitable zwitterionic synthetic detergents include derivatives of aliphatic quaternary ammonium, phosphonium, and sulphonium compounds, in which one of the aliphatic substituents contains from 8 to 18 carbon atoms and one contains an anionic water solubilising group, e.g. carboxy, sulfo, sulfato, phosphato or phosphono. Examples of compounds falling within this definition are 3 - (N,N - dimethyl - N - hexadecylamino) propane - 1 - sulfonate and 3 - (N,N - dimethyl - N - hexadecylamino) - 2 - hydroxy - propane - 1 - sulfonate which are especially preferred for their excellent cool water detergency characteristics. See, for example, British Patent Specifications 987,795 and 1,274,005 and British Patent Applications 17433/70 and 28760/72. 100

Detergency builders useful in the bleaching agents of the present invention include water-soluble inorganic alkaline builder salts and organic alkaline sequestering builder salts and mixtures thereof as described and illustrated below. 105

Examples of water soluble inorganic alkaline builder salts (and mixtures thereof) which can be used in the compositions of 110

120

this invention include the sodium, potassium, ammonium and substituted ammonium carbonates, borates, phosphates, condensed polyphosphates, bicarbonates and silicates. Specific examples of such salts are the sodium and potassium tripolyphosphates, carbonates, tetraborates, pyrophosphates, orthophosphates, bicarbonates and hexameta-phosphates.

Examples of organic alkaline builder salts (and mixtures thereof) which can be used are alkali metal, ammonium or substituted ammonium aminopolycarboxylates, for example, sodium and potassium N - (2 - hydroxyethyl) - ethylene - diaminetriacetates and sodium and potassium nitrilotriacetates. Other useful polycarboxylate builders are the sodium and potassium salts of polymaleic, polyitaconic and polyacrylic acids. The alkali metal salts of phytic acid are also suitable builders.

The polyphosphonates which can be used as builders for the compositions of this invention include compounds exemplified by the following: sodium and potassium salts of ethane - 1 - hydroxy - 1, 1 - diphosphonic acid, and sodium and potassium salts of methylene and ethylenediphosphonic acids. Additional examples of builders useful in the present invention are disclosed in U.S. Patent 3,336,230.

Inorganic salts which have little or no detergency-building effect may be present as fillers or for other reasons, such as sodium sulphate, sodium chloride and the corresponding potassium salts. It is preferred that the bleaching composition should have a pH, when dissolved as a whole in a working solution, of about 8.5 to 10, especially about 9. Thus preferably the builders and other salts in the composition should contain sufficient more acidic material to counteract the alkalinity of the coating of the bleaching agent.

The amount of peroxy bleaching compound in the compositions can vary widely depending upon the type of composition and the way it is intended to be used. One class of compositions in which the bleaching agent can be a very valuable ingredient comprises the so-called heavy duty household detergent compositions. In such compositions, which are conventionally used in washing liquors at a concentration of about 0.05 to 1% by weight, especially about 0.1 to 0.6%, a content of about 10% of peroxy compound by weight would be suitable, providing some 30 parts per million of available oxygen in the washing liquor derived from said peroxy compound. Alternatively the bleaching agents may be included in bleach additive products, intended and formulated for addition separately to a wash or soak treatment of fabrics requiring low temperature bleaching.

Example 1.

Preparation of bleaching agent.

25 g. molten lauric acid was added to 2 litres of water, acidified with 1 drop of concentrated sulphuric acid, and stirred by a propeller agitator located near the bottom of the container. The temperature was maintained at 48°C, just above the melting point (44°C) of the lauric acid. Meanwhile a slurry was prepared of 75 g. pure benzoyl glutaryl peroxide (BGP), melting point 53°C, in 500 ml. of slightly acidified water at 45°C, and vigorously stirred with a turbine type mixer. Addition of a trace of wetting agent (anionic surfactant) was found to improve the uniformity of the dispersion of BGP. The slurry was poured slowly into the fatty acid dispersion. The mixture was then cooled as rapidly as practicable, with continued stirring to below 35°C. The stirrer was then stopped and the solid particles filtered off, and air dried. When their moisture content had fallen to about 8 weight per cent, they were sprayed with about 8% water adjusted to pH 8, and then added slowly to a large excess of anhydrous sodium carbonate (soda ash) in a rotating drum. The drum was rotated for 10 minutes after all the BGP-fatty acid particles had been added. The solid mixture was then sieved to separate the fraction passing a 22 mesh BSS sieve and retained on a 44 mesh BSS sieve. This fraction was sprayed, in a rotating drum, with 5% of its weight of polyethylene glycol of molecular weight 1500. The production contained about 14 parts sodium carbonate (as Na₂CO₃) per 65 parts BGP-fatty acid mixture.

Example 2.

Two detergent compositions were prepared as follows:—

	A	B	
BGP granules (prepared substantially as in Example 1)			105
45% BGP content	22.2%	—	
BGP sodium sulphate mixture (1:1 by weight)	—	20	110
Sodium perborate tetrahydrate	20	20	
Sodium sulphate	—	2.2	
Built detergent composition	57.8	57.8	

The built detergent composition was a spray dried granular composition containing as essential components 14% anionic organic detergent, 4% soap, 44% sodium tripolyphosphate, 11% sodium silicate, 12% sodium sulphate, 10% water.

Test fabrics were nylon pantie hose for pin-point spotting evaluation and cotton swatches stained with milkless tea for bleaching. For spotting evaluation, the test pieces were placed in a shallow dish containing 1 litre of water and when they were wet, 5 g.

of solid granular test product were poured on to the wet fabric. After 30 minutes standing, the fabrics were rinsed, dried and examined visually for pin-point spotting.

- 5 Spotting was granulated on a 0-5 scale (0—no spotting, 5—severe spotting). For bleaching the test pieces were soaked in a 0.5% by weight solution of the test composition in water at 40°C for 30 minutes.
- 10 Tea stain removal was determined by reflectance measurements.

Results were:—

	Spotting	Test stain removal.
15 Composition A	0	65%
Composition B	3-4	65%

Example 3.

- 100 g. sodium p-benzoyloxy benzene sulphonate (BOBS), in finely divided form, and 60 g. anhydrous sodium carbonate (soda ash) were mixed in an inclined pan granulator and sprayed with 50 g. melted myristyl alcohol. The granulator product so formed was sprayed with enough water to moisten the granules, and tumbled with 20 g. soda ash, substantially all of which adhered to the particles. A free flowing granular product was obtained.

Example 4.

- 30 Two detergent compositions were prepared as follows:—

	C	D
	parts	
BOBS	8	—
35 Sodium perborate tetrahydrate	12	12
Composition of Example 3	—	18.4*
Built detergent composition	80	80
*Containing 8 parts BOBS	100	110.4

- 40 The built detergent composition was a spray dried granular composition containing as essential components 11% sodium dodecylbenzene sulphonate, 4% nonionic detergent, 5% soap, 44% sodium tripolyphosphate, 10% sodium silicate, 14% sodium sulphate, 7% water.

- 45 In a 5 minute wash at 120°F, employing a 0.5% by weight solution of composition C, and a corresponding concentration on a BOBS basis viz. 0.55%, solution of composition D.

- 50 Stain removal results (on standard tea stained cloths) were:

	Composition C	40%
	Composition D	39%
55 Least significant difference (95% confidence).		2.5

Spotting of dyed nylon shirt fabric was evaluated and graded as in Example 2.

Results were:—

Composition C	3-4	60
Composition D	0-1	

WHAT WE CLAIM IS:—

1. A solid particulate bleaching agent whose particles comprise a solid peroxy substance as hereinbefore defined, the peroxy substance being substantially completely surrounded by a substantially water-impermeable layer of a material which is inert to the peroxy substance or able to act as a stabiliser therefor and which has a melting point in the range 30 to 95°C and being further surrounded by a coating comprising a particulate water soluble inorganic hydrate-forming salt having a pH in a 1% by weight aqueous solution of at least 10.5.
2. A bleaching agent according to claim 1 wherein the water-impermeable material has a melting point in the range from 35-60°C.
3. A bleaching agent according to claims 1 or 2 wherein the water impermeable material is selected from fatty acids, fatty alcohols and mixtures thereof.
4. A bleaching agent according to any previous claim wherein the peroxy substance is benzoyl glutaryl peroxide.
5. A bleaching agent according to claim 4 wherein the water-impermeable coating material is lauric acid.
6. A bleaching agent according to claims 1-3 wherein the peroxy substance is sodium p-benzoyloxybenzene sulphonate.
7. A bleaching agent according to claim 6 wherein the water-impermeable coating material is myristyl alcohol.
8. A bleaching agent according to any previous claim wherein the weight ratio of peroxy substance to water-impermeable material is from 1:2 to 4:1.
9. A bleaching agent according to any previous claim wherein the inorganic salt is an alkali metal carbonate.
10. A bleaching agent according to any previous claim wherein the weight ratio of inorganic salt, in anhydrous form, to total of peroxy substance and water-impermeable material is from 1:6 to 2:1.
11. A bleaching agent according to any previous claim wherein the coated particles have an outer waxy coating.
12. A bleaching agent according to claim 11 wherein said particles are sprayed with from 1 to 10% of their weight of a polyethylene glycol of molecular weight in the range from 500 to 6,000 to produce the said outer waxy coating.
13. A process for preparing a bleaching agent according to claim 5 or any one of claims 8-12 when appendent to claim 5,

which comprises mixing a dispersion in water of liquid droplets of lauric acid and a dispersion in water of finely particulate benzoyl glutaryl peroxide, allowing
5 time for the benzoyl glutaryl peroxide to migrate into the liquid droplets, cooling the suspension to a temperature at which said droplets become solid, separating the resulting solid particles from the water, and
10 thereafter surrounding them with an outer coating comprising said particulate water soluble inorganic hydrate-forming salt.

14. A process according to claim 13 wherein said aqueous dispersions are in water having pH not exceeding 7.

15. A process for preparing a bleaching agent according to any one of claims 1—3 or claims 5—12 when appendent to any one of claims 1—3 which comprises spraying a
20 dry mixture of the peroxy substance and a substantially anhydrous inorganic salt with melted water-impermeable substance to form agglomerates and thereafter surrounding the agglomerates with an outer coating of in-
25 organic salt, said inorganic salts being the same or different and each being hydrate forming salts having pH in 1% by weight aqueous solution of at least 10.5.

16. A process according to claim 15 where-

in said inorganic salts are each anhydrous sodium carbonate. 30

17. A process according to any one of claims 13—16 wherein said outer coating is applied to tumbling the particles coated with water-impermeable material, while moist
35 or after moistening with water in a bed of said inorganic salt.

18. A process according to any one of claims 13—17 wherein the double coated particles are sprayed with up to 10% of their weight of a waxy substance. 40

19. A process according to claim 18 wherein said waxy substance is polyethylene glycol of molecular weight in the range 500—6,000.

20. A process for preparing a bleaching agent as described in Example 1 or Example 3. 45

21. A bleaching agent when prepared according to any one of claims 13—20.

22. A detergent composition including a bleaching agent as claimed in any one of claims 1—12 and 21. 50

For the Applicants,
CARPMAELS & RANSFORD,
Chartered Patent Agents,
43 Bloomsbury Square,
London, WC1A 2RA.